

NON-PUBLIC?: N  
ACCESSION #: 8711200088  
LICENSEE EVENT REPORT (LER)

FACILITY NAME: Beaver Valley Power Station Unit 2 PAGE: 1 of 3

DOCKET NUMBER: 05000412

TITLE: Turbine Trip/Reactor Trip on Low EHC Pressure  
EVENT DATE: 10/14/87 LER #: 87-028-00 REPORT DATE: 11/13/87

OPERATING MODE: 1 POWER LEVEL: 099

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR  
SECTION  
50.73(a)(2)(iv)

LICENSEE CONTACT FOR THIS LER:  
NAME: Mr. William S. Lacey, Plant Manager TELEPHONE #: 412-643-1258

COMPONENT FAILURE DESCRIPTION:  
CAUSE: B SYSTEM: TA COMPONENT: PS\* MANUFACTURER: W120  
REPORTABLE TO NPRDS: N

SUPPLEMENTAL REPORT EXPECTED: No

ABSTRACT: At approximately 1000 hours on 10/14/87, an operator in the Unit 2 Control Room received an alarm indicating a loss of Turbine Electrohydraulic (EH) Fluid pressure. A non-licensed Nuclear Operator (NO) was directed to open the manual isolation valves for the EH fluid pressure switches in order to restore pressure. These switches had been isolated previously due to erratic operation that had led to a turbine trip. Before the SUO could reach the valves, however, the turbine tripped on a low EH fluid pressure signal. Since reactor power was 99%, which is greater than the turbine trip interlock setpoint (P-9) of 49%, the turbine trip resulted in a reactor trip at 1010 hours. Operators followed emergency procedures to stabilize the plant by 1025 hours. No safety implications resulted because the Reactor Protection System and all appropriate Engineered Safety Features operated properly to mitigate the consequences of the transient. The cause of the event was determined to be leakage past the EH pressure switch isolation valves. To correct the problem, the valves were opened and the EH low pressure circuits bypassed. The reactor was taken critical at 2115 hours, 10/14/87. Westinghouse will modify the circuits during the first refueling outage.

(End of Abstract)

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On 10/14/87, Unit 2 was in operation at 99% reactor power when, at approximately 1000 hours, an alarm indicating low Turbine Electrohydraulic (EH) fluid pressure was received in the Control Room. The Plant Operator (PO; a licensed Reactor Operator responsible for turbine control) acknowledged the alarm aft

r verifying that it had been caused by the actuation of the Channel I EH Fluid Pressure indicating Switch (2TMB-PSiLP). The PO notified the Shift Foreman, who directed a Nuclear Operator (NO; a non-licensed auxiliary Operator) to proceed to the Main Turbine and open the isolation valves (2TMB-118, 118, 120, 121) for all four EH Fluid Trip Pressure Switches. These switches had previously been isolated after their erratic operation contributed to a turbine trip in August 1987. It was judged after receipt of the low pressure signal that the pressure trapped by the closed isolation valves was bleeding off; thus, opening the valves would restore system pressure to the switches. However, before the SUO could manipulate any of the valves, a second switch reached its low pressure actuation setpoint, which completed the logic for a 2/4 Low EH Pressure Turbine Trip at 1010 hours. The turbine trip immediately caused a reactor trip since reactor power was greater than the 49% turbine trip/reactor trip interlock setpoint.

The operators used Beaver Valley Unit 2 Emergency Procedure (EOP) E-0, "Reactor Trip or Safety Injection". After ascertaining that safety injection was not required, the operators used EOP ES-01, "Recovery from Reactor Trip" to stabilize the plant in the Hot Standby Mode (3) by 1025 hours, 10/14/87.

There were no safety implications as a result of this event because all Reactor Protection System (RPS) and Engineered Safeguards Feature (ESF) equipment actuated properly in response to valid signals to mitigate the consequences of the transient. Specifically the RPS functioned to shutdown the reactor upon sensing a turbine trip above the P-9 interlock setpoint, while the Condenser Steam Dumps removed reactor decay heat. The Auxiliary Feedwater Pumps started upon the receipt of Low-Low Steam Generator Signals in all three generators due to the expected level shrink after the trip. A partial feedwater isolation (shutting the Main Feedwater Regulating Valves) occurred when the Reactor Coolant System Temperature decreased to under 554 degrees Fahrenheit. The Main Feedwater Pumps, however, continued to operate because no Full Feedwater Isolation occurred. The Nuclear Regulatory Commission was informed of the event by Emergency Notification System Red Phone at 1056 hours on 10/14/87, within the four hour provision of 10 CFR 50.72.b.2.ii. This written report is being submitted under 10 CFR 50.73.a.2.iv.

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The Station's Instrument and Control (I and C) Section was dispatched to determine the cause of the Low EH Fluid Pressure. The low pressure was judged to have been caused by expected leakage over time past the pressure switch isolation valves. In addition, I and C was to install jumpers bypassing the pressure switches and disable the automatic Low EH pressure trip function, subject to approval by Westinghouse (the turbine vendor). This approval was granted at 1145 hours on 10/14/87, provided that the reactor was manually tripped if the Low Turbine EH Fluid Pressure alarm was received and did not clear within one minute. This provision has been incorporated in a Special Operating Order to be used until the EH system is modified. The system will be modified through the addition of a time delay circuit, by Westinghouse during the first refueling outage. This modification will prevent the recurrence of events similar to the one described in this report.

The reactor was taken critical at 2115 hours, 10/14/87.

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November 13, 1987  
ND3SPM:0086

Beaver Valley Power Station, Unit No. 2  
Docket No. 50-412, License No. NPF-73  
LER 87-028-00

United States Nuclear Regulatory Commission  
Document Control Desk  
Washington, DC 20555

Gentlemen:

In accordance with Appendix A, Beaver Valley Technical Specifications, the following Licensee Event Report is submitted:

LER 87-028-00, 10 CFR 50.73.a.2.iv, "Turbine Trip/Reactor Trip on Low EHC Pressure".

Very truly yours,

/s/ Wm. S. Lacey  
Wm. S. Lacey  
Plant Manager

tlu

Attachment

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